TEAM MEMBER TRAINING MANUAL

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CGA INC.

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March 12, 1999

This letter is to inform you that pages 4-5, 11-18, 31-32, 35-36, were left out of the team training manual on purpose.

I am faxing you page 34 that seems to have been left out in error. I apologize for any inconvenience you might have experienced, but the pages were not supposed to be in the manual you received.

Thanks,

Tricia

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PARADIGMS AND MODULAR MANUFACTURING

DEFINITION

"Paradigms" is a new word for most of us. The root of the word is from the Greek word "*Paradigma*", meaning pattern. Paradigms can be defined as a sets of rules and regulations which define boundaries.

Thomas Kuhn studied paradigms. In his book, A History of Scientific Thought, he told us much about paradigms as they relate to scientific thought. His findings also have meaning to our lives as well.

Paradigms have a powerful affect on how scientists see the world. Rules and regulations act as filters. They screen incoming experiences and information. Information which agrees with the scientist's paradigm has an easy path, is easily seen and understood.

The negative side of paradigms is that information which does not agree with the scientist's paradigm has a difficult path, is not easily seen or understood, and has a difficult time being accepted. Kuhn found that scientists actually shaped their findings to fit their paradigms. They were unable to see very obvious information, because it didn't agree with their paradigms.

In real life terms, paradigms constantly filter incoming experience. We see the world through our own paradigms. We select information that fits our paradigms and ignore that information which does not fit. This is the reason it is so easy for some to accept a new idea out of hand, while others cannot see or accept it at all. We tend to see new things, experiences, and ideas through our old paradigms. New things do not always agree with old paradigms. Because of this it is difficult to accept new ideas.

EXAMPLES OF PARADIGMS

From the video...

- Cards from a card deck.
- Running 70 miles.
- A 2,000 pound, 77 Miles-per-gallon, 16 HP. car, which goes from 0 to 60 MPH is under 10 seconds.
- Easy Seat.
- Xerox process
- "Made in Japan".

From our own experiences...

- _____
- _____
- _____

From work...

- _____
- _____
- _____

Key Point... Paradigms influence our judgment by influencing our perceptions. If you want to see the future you must understand your own paradigms and how they influence you.

A paradigm is a two-edged sword. If you swing it one way, it cuts information which agrees with it into small parts of precise detail. Swing it the other way, and it cuts you away from information which runs counter to the old paradigm. You see clearly and easily the information which fits your own paradigm. Information which does not fit the paradigm may not be seen at all.

SIX KEY OBSERVATIONS ABOUT PARADIGMS

1. Paradigms are common. They are everywhere. We see them in all parts of our life... at work, at school, at home, in religion, etc.

2. Paradigms are useful. They help to define what is important to us. They give structure to our thought. They help us to set priorities.

3. Your paradigm can become "the" paradigm. Other paradigms may exist, but we refuse to accept them or to learn from them. This can lead to "Paradigm Paralysis", a terminal disorder of certainty.

4. People who create or introduce new paradigms are usually from the outside. They are not a part of the old paradigm community. New rules or paradigms are not written in the mainstream. They are written on the fringes or edges. If we wish to look for new ideas, this is where we need to look.

5. Those who join a new paradigm early-on must be courageous. They do this without clear evidence that the new paradigm is correct. They may also be subjected to persecution. They accept the new paradigm on faith alone.

6. You can choose to change your paradigms. You can choose to see the world anew... through a new or different set of rules.

Key Point...Over the next ten years, people will be experiencing many new things. Many new ideas will be presented to us. If we can accept new paradigms, these new things can be opportunities. If we are shackled by our old paradigms, they will be viewed as threats. Only you can make the decision to accept new paradigms.

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PARADIGM RECOGNITION

IN THE FOLLOWING EXAMPLES, CHECK WHETHER THE STATEMENT DESCRIBES A PARADIGM, AN INNOVATION, OR NEITHER.

1. WE HAVE ALWAYS DONE IT THAT WAY.
2. USING TEAMS RATHER THAN INDIVIDUAL INCENTIVES.
3. A STITCH IN TIME SAVES NINE.
4. CARS SHOULD HAVE FOUR WHEELS.
5. AS STRAIGHT AS AN ARROW
6. USE THE AUTOMATIC TRIMMER, NOT THE SCISSORS.
7. TO FLY, YOU MUST BE LIGHTER THAN AIR.
8. YOU SCRATCH MY BACK, I'LL SCRATCH YOURS.
9. A LARGE BACKLOG OF ORDERS IS GOOD JOB SECURITY.
10. IT CAN'T BE DONE, BECAUSE NO ONE ELSE HAS DONE IT.
11. NECESSITY IS THE MOTHER OF INVENTION.
12. SECRETS OF GOOD PERFORMANCE MEANS JOB SECURITY.
13. MEN ARE POLICE OFFICERS, WOMEN ARE NURSES.
14. ONLY WOMEN SHOULD WEAR SKIRTS.
15. OPERATORS CAN ONLY MASTER ONE OPERATION AT A TIME.
16. WHEN MY MACHINE IS RUNNING, I'M MAKING MONEY.
17. PEOPLE WORK MORE EFFICIENTLY WITH INDIVIDUAL GOALS.
18. THE SUM OF TWO PLUS TWO IS FOUR.
19. THE WHOLE IS EQUAL TO THE SUM OF ITS PARTS.
20. MY RUNNING SHOES CLOSE WITH VELCRO.
21. THE SUPERVISOR KNOWS BEST HOW TO BALANCE THE WORK.
22. AS LONG AS YOU ARE WORKING, YOU ARE PRODUCING.
23. YOU MUST CLOCK-IN TO BE PAID.
24. OTHERS?
25 .
26 .
27 .
28 .

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DR. DEMING'S 14 POINTS

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive, stay in business, and provide jobs.

2. Adopt the new philosophy. Management must learn to lead.

3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any item on a long-term relationship of loyalty and trust.

5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.

6. Institute training on the job.

7. Institute leadership. The aim of leadership should be to help people, machines and gadgets to do a better job.

8. Drive out fear, so that everyone may work effectively for the company.

9. Break down barriers between departments. People in research, design, sales, and production must work as a team.

10. Eliminate slogans, exhortations, and targets for the work force that ask for zero defects and new levels of productivity without providing the methods.

11. Eliminate work standards (quotas) on the factory floor. Substitute leadership.

12. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from stressing sheer numbers to quality.

13. Institute a vigorous program of education, re-education and self improvement.

14. Put everybody in the organization to work to accomplish the transformation.

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THE TRANSFORMATION FROM LINES TO MODULAR MANUFACTURING

NOTE: This should be used in conjunction with the Hewlett Packard "Stockless Production" video.

INTRODUCTION

When companies change their means of process from production lines which groups work into large batches, and pushes them from one operation to the other, there is a transformation in the workplace. This transformation is dramatic and in many ways it is visual. There are other effects of the transformation which are not so visible. In watching the Hewlett Packard video try and pick out all the ways the process is transformed.

PUSH VERSUS PULL

Hewlett Packard describes the conventional method of manufacturing as a "push" system. They then change the process to a "pull three" and then to "pull one". "Pull" means that work is only processed at an operation as it is needed. "Push" means that work is processed as it is available, without regard for the need of other operations. In Modular Manufacturing, we say that "push" processing adds pressure. Conversely, "pull" processing relieves pressure. As an example, if I am on an operation which is getting behind, I feel pressure to speed up and reduce the pile of work waiting on me. I feel the need to "push it on down the line". No one likes to work under pressure, so any way to relieve the pressure is usually welcome. Modular manufacturing is a "pull" system of manufacturing.

QUESTIONS ABOUT THE VIDEO

QUESTION: What were your impressions about the "Push" system of processing presented in the video?

_____

QUESTION: What were your impressions about the "Pull" system of processing presented in the video?

_____

QUESTION: Which method of processing looks to be the best?

_____

QUESTION: Which method of processing would you rather work in?

_____

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ADVANTAGES OF PULL

Organization. In a "pull" system, the workplace looks to be more organized than in the "push". There is less "mess" with which to deal with. Rather than individuals working their "rear ends" off, they seem to be working toward a common goal. While some individuals in the team might seem to be working more easily, and free from pressure, there is still the same amount of work being done.

Work-in-Process. When the process is changed to "pull" the amount of work between steps in the process is greatly reduced. This has many benefits. Some will be mentioned in the video, but inventory costs money and reduces profit in the long run.

Throughput. The amount of time needed to complete a product is greatly reduced in the "pull" system. This means it is much easier to meet a customer's need to turn orders more quickly. This can result in better profits for the company and increased customer satisfaction.

Quality. Quality in the video is measured by the amount of work which would need to be reprocessed. Because of the reduced process, there was potentially less "bad work" in the "pull" process. They said that quality problems were hidden under the piles of work in the "push" system. Quality will, therefore, be improved in a "pull" system of manufacturing, because it is easier to see problems.

Space. Again because of the reduction in work in process, there is less space needed in the "pull" system. Space reduction can benefit a team by making it easier to communicate with one another. Space reduction can mean more product can be produced in the same plant. This lowers the cost of production associated with the costs of space such as rent, utilities, and property taxes.

Process Improvement. The "pull" system of manufacturing gives a company as well as the members of a team a chance to see potential improvements which might be made. In the same way quality problems become visible, so do other problems associated with the process. In the Hewlett Packard video, it was evident that not everyone was working the same. Some members were basically doing nothing, while one of the members was working "flat out" and actually limiting the group. If team members use the visibility of the "pull" system, it becomes much easier to discover and implement potential process improvements

WHAT IS MISSING IN THIS VIDEO?

The Hewlett Packard video presents a version of "pull" processing. It is called "Stockless Production". It is evident that this company gained much by adopting this system of processing. Yet there was something missing. An essential element which is crucial to the success of most work teams.

Many work team concepts result in all the benefits revealed in the Hewlett Packard video. However, many result in higher costs, because productivity is not improved. This makes products either less profitable or less competitive. Obviously, process improvement which costs more but delivers no added value to the customer is not good.

QUESTION: In one word name what is missing in the Hewlett Packard video, which is essential in Modular Manufacturing?

_____

QUESTION: What benefits to the company and to individual team members will be realized if the missing word is practiced in Modular Manufacturing?

_____

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I. WHAT THE GROUP OFFERS THE INDIVIDUAL

A. Satisfaction of Social Needs

1. People join groups because of a need for affiliation.
2. Research indicates that employees who have no opportunity for social contact find their work unsatisfying. Lack of satisfaction reflects itself in low production, high turnover, and absenteeism.

B. Identification of Emotional Support

1. Self-image derives from social change.
2. Group fills an important function by providing its members with a kind of guide to correct behavior.
3. In stressful times, individuals show loyalty to immediate group.

C. Assistance in Meeting Objectives

1. Employees turn to fellow workers for assistance.
2. Ability of providing assistance is a source of substantial prestige for the giver.

II. FACTORS OF THE INFORMAL ORGANIZATION

A. External Factors

Most people have a need for affiliation and membership. Yet once they have established mutual relationships, many individuals want to be better than their companions. Everyone wants to be equal. Some want to be more equal than others.

B. Internal Factors

1. Job title - status of each individual depends in part on the job she holds.
2. Pay - even a difference of a few cents per hour may have a significant effect on a job's status.
3. Work schedule - the freedom to choose one's hours, or being excused from punching the time clock, is a mark of distinction.
4. Mobility - generally, a job which allows a person to move around freely, interacting and communicating with many different people, is thought of as having higher prestige than a position that allows no autonomy or discretion. (Also, autonomy or freedom from close supervision).
5. Symbols of office - which company lunchroom? A reserved parking space? Can you leave the building for coffee?

C. Size

Large groups hinder communication, lower homogeneity, and encourage breaking up into small cliques. Small departments seem to be more closely knit.

D. Groups tend to develop a conception of a "fair day's work". (So that there is a relative equality of effort).

E. Group Discipline

1. Individuals tend to conform to the group's norms of behavior.
2. Withdrawal of the group's contribution to the individual is the primary method of enforcement.

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GENERAL STATEMENTS CONCERNING MODULAR MANUFACTURING

I. OBJECTIVES

Short-cycle manufacturing and fast throughput.
Lower work-in-process.
Versatile and flexible operators.
Defect-free production.
Team environment.
Multi-skilled operators.
Minimum of supervision.

2. ORIENTATION

For plant management, supervisors, mechanics, quality inspectors, and production planners.

PLANT MANAGEMENT	New ways to measure performance.
SUPERVISORS	Not as many New role - coach, facilitator, advisor, instructor, planner
MECHANICS	Preventative maintenance Train teams of operators in preventative maintenance.

3. OPERATOR DEVELOPMENT

Theories of Modular Manufacturing
Team Training
Communications
Problem Solving Technique
Quality Procedure
Methods Engineering

4. BENEFITS

A. THROUGHPUT TIME

Better customer relations and service from major retailers,mail order houses, discounters.

B. QUALITY

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Smaller WIP.
All team members care (affects the group as a whole).
Pay is for first quality and some material defects.

C. PRODUCTIVITY
Shift work content to balance.
Standard Labor (piece rate) is enhanced.
Make-up (Excesses) are reduced.

D. POTENTIAL FOR INCREASED EARNINGS

E. INDIRECT
No in-line quality control.
No bundle handling.
Supervision can handle more and spend time planning.
Maintenance becomes less a problem (need spares to help).
Mechanics are more responsive.

F. INCREASED MORALE
Turnover and absence are reduced.
Spreads to cutting, distribution, office, etc.

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GROUP DEVELOPMENT CHARACTERISTICS

I. STAGE ONE -- FORMING

- Feeling moderately eager with high expectations
- Feeling some anxiety: Where do I fit? What is expected of me?
- Testing the situation and central figures
- Depending on authority and hierarchy
- Needing to find a place and establish oneself

II. STAGE TWO -- STORMING

- Experiencing a discrepancy between hopes and reality
- Feeling dissatisfied with dependence on authority
- Feeling frustrated: anger around goals, tasks and action plans
- Feeling incompetent and confused
- Reacting negatively toward leaders and other members
- Competing for power and/or attention
- Experiencing polarities: dependence/counter-dependence

III. STAGE THREE -- NORMING

- Decreasing dissatisfaction
- Resolving discrepancies between expectations and reality
- Resolving polarities and animosities
- Developing harmony, trust, support and respect
- Developing self-esteem and confidence
- Being more open and giving more feedback
- Sharing responsibility and control
- Using team language

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IV. STAGE FOUR -- PERFORMING

- Feeling excited about participating in team activities
- Working collaboratively and interdependently with whole and sub-groups
- Feeling team strength
- Showing high confidence in accomplishing tasks
- Sharing leadership
- Feeling positive about task successes
- Performing at high levels

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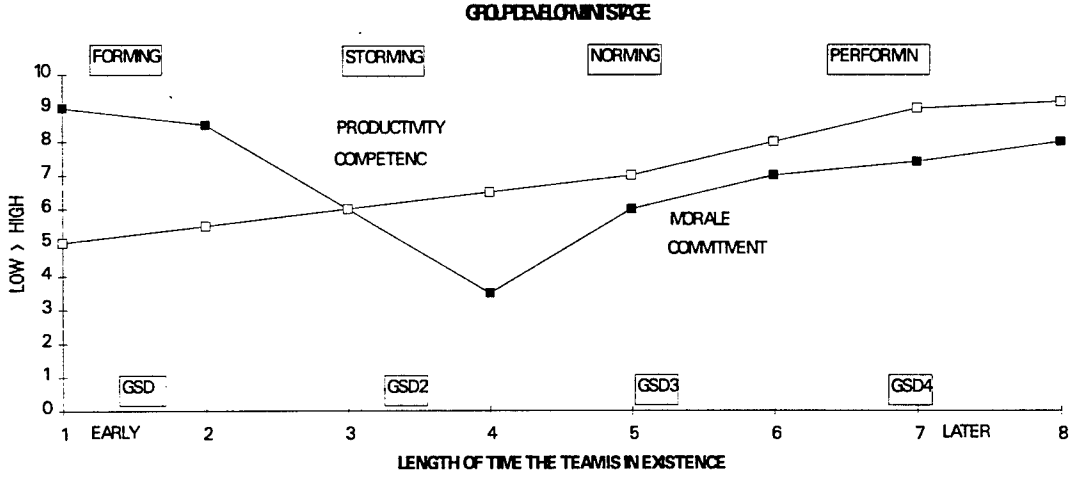
GROUP DEVELOPMENT STAGES

FORMING — Team members are "testing the water" to find out what theTeam is all about. The Team name and code of conduct are established. Team members look to the Team Leader for direction. Some choose to remain independent of the process.

STORMING — Conflict begins to emerge as Team members realize they just give up some of their independence for the sake of the Team. Much of the conflict may remain "beneath the surface", but it is there.

NORMING — As the Team focuses on the problem solving process and experiences some success, respect and trust begin to emerge. The focus now shifts to a meaningful exchange of information. Team members begin to feel free to express their different views.

PERFORMING — The Team experiences interdependence, with all members contributing to the successful solution of the customer satisfaction problems they have identified. Team members are willing to be individually responsible as well as accountable to each other. It feels good to be a member of the team.



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THE PUSH AND PULL METHODS OF MOTIVATION

From the earliest of times, probably when the first human performed some task for another, man has sought ways to get more out of this helper. Incentives were tried, but were never totally effective. Fear, reward, slavery, and freedom have all been tried as motivators.

FREDERICK TAYLOR

The earliest modern research into motivation and how to do things in a working environment was done by Frederick Taylor. His theories were gleaned from his studies of productivity. The setting was the steel industry.

Basically, Taylor believed the way to get more out of workers was to break down their tasks into small, well defined, and separate parts. In this way, lower cost, unskilled labor could perform the small, highly repetitive tasks. Since the tasks were repetitive and well defined, there was no need for decision-making or for much thought or initiative. This approach makes it easy to understand why employees in some companies are still referred to as "hands", since that is all Taylor's concept needed from the worker for success.

This method was successful to some extent. It was picked up and perfected by others. Its use became widespread. The fine tuning of this concept is a major reason the modern piece rate system was developed.

Taylor's concept also formed the basis for most conventional supervisory training theories. These shared the four functions of planning, organizing, directing, and controlling.

The Taylor concept in and of itself was not necessarily bad. The refinement of it basically led companies to demand high output, leading to high stress, little say so, and the sting of an incentive system. All in all, Taylor's concept for reduced cost and better efficiency turned into a system which "pushed" the worker.

DOUGLAS MCGREGOR

Another influence on modern motivation practices came from McGregor. He classified managers as either Theory X or Theory Y. The following definitions really show how polarized the two theories are.

Theory X managers believed the worker was basically good-for-nothing, lazy, and irresponsible. Theory X managers believed workers should be treated that way. Theory X managers believe the worker must be told what to do, when to do it, how to do it, how much to do, when to start, when to rest, what was right, and what was wrong. There was no decision-making or initiative allowed, because Theory X managers did not believe the workers capable.

Theory Y managers believe workers truly want to do a good job, are capable, and can contribute their ideas to a company. Theory Y managers communicate with their employees, allow them to participate in decision-making, and seek to motivate them through recognition for a job well done.

The two theories really are at opposite ends of the spectrum. McGregor pointed out that very few managers are truly all Theory X or Theory Y. Most lie somewhere in between. On some days and in some situations managers may lean more toward one extreme or the other. Since people and the situation constantly changed, the approach needed should also change.

THE BRIDGE BETWEEN PUSH AND PULL MOTIVATION TECHNIQUES

Both Taylor and McGregor seemed to echo the management style of their time. This was a time when Industrial Engineering was coming to the forefront. It was also the time modern (for those times) management theories were developed.

Without question Theory X is a "push" style of motivation. It clearly has the ring of a theory which would put the employee down. It does not seem to the observer of today to be a good means of motivation.

Theory Y on the other hand allows us to bridge the gap between the theories developed by the business community and those developed by those who studied human behavior. Behaviorists such as Abraham Maslow, and Frederick Herzberg developed theories of motivation which share much of the same kinds of things as Theory Y. Theory Y as well as the theories of Maslow and Herzberg offer ways for managers to practice "pull" concepts of motivation.

LEADERSHIP

A MANAGER	A LEADER
* ADMINISTERS	* INNOVATES
* MAINTAINS	* DEVELOPS
* RELIES ON SYSTEMS	* RELIES ON PEOPLE
* COUNTS ON CONTROL	* COUNTS ON TRUST
* DOES THINGS RIGHT	* DOES THE RIGHT THING
* IS SOMEONE YOU WOULD WOULD FOLLOW INTO A BUDGET MEETING	* IS SOMEONE YOU FOLLOW INTO BATTLE

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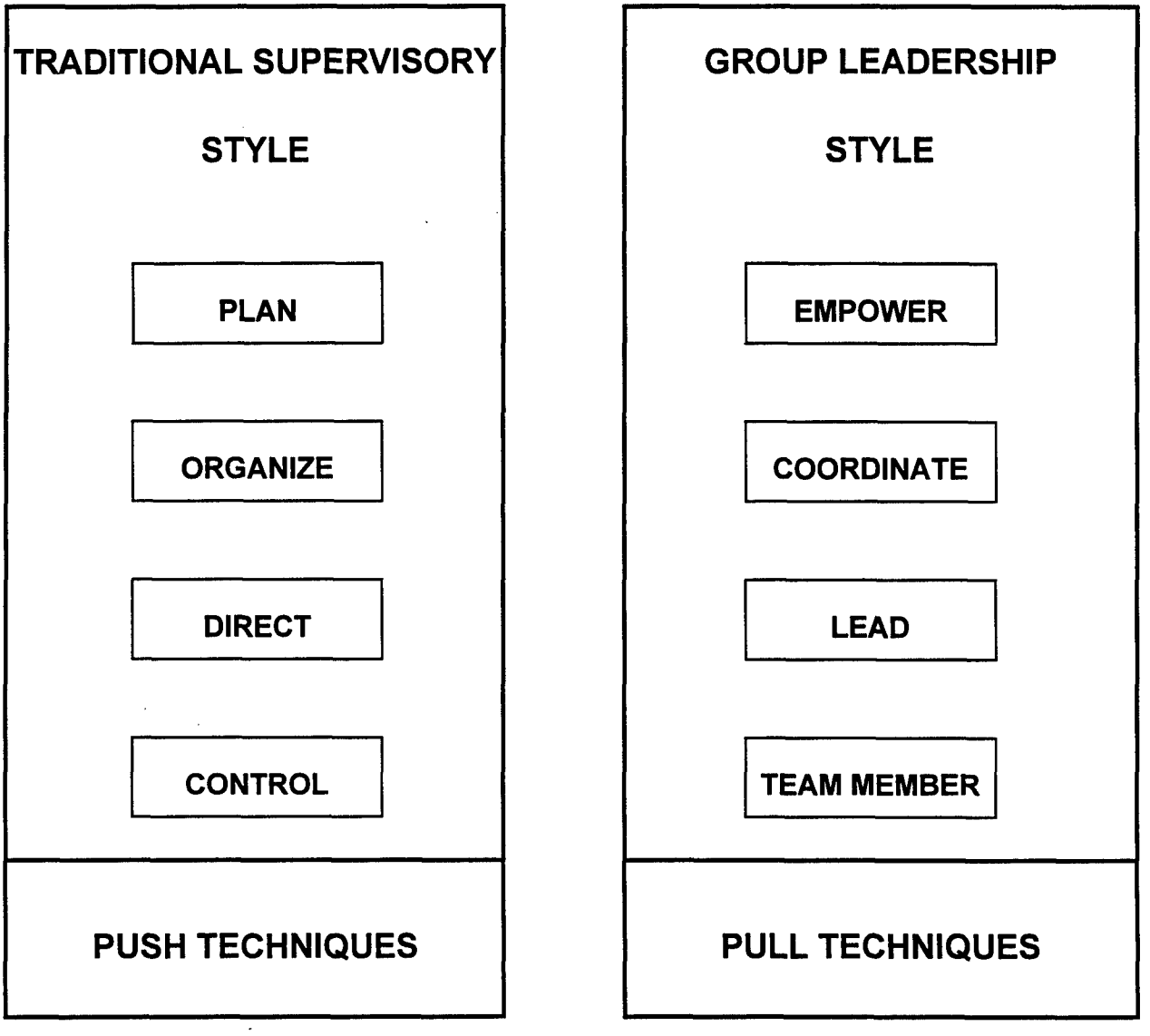
THE CHANGING ROLE OF THE SUPERVISOR



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THE NOMINAL GROUP TECHNIQUE OF DECISION MAKING OR BRAINSTORMING

This technique has been taught for years to a wide variety of groups. The steps are as follows:

1. Seven to ten participants sit around a table in view of one another.

2. After the problem for decision making or brainstorming and the nominal group instructions are given, the participants silently list their ideas on a pad of paper.

3. After five or ten minutes a "facilitator" obtains one idea from each member in turn and writes that idea on a flip chart. No discussion takes place during this step.

4. Step three is repeated until all ideas are listed on the flip chart.

5. Each idea is discussed. Participants seek clarification and express support or nonsupport.

6. Each participant then secretly records a rank-ordering of ideas.

7. The decision is the idea that emerges in first place as a result of averaging the ranking of all participants.

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BOB'S WAY TO SOLVE A PROBLEM

No matter when groups get together, and no matter what the group is supposed to be doing, problems will arise from time to time. This happens to families, boy scouts, Sunday school classes, and modular work teams. This is just a reality. Problems will arise, but they do not have to lead to the failure or break-up of a group.

Once a problem has arisen, it really needs to be dealt with. Ignoring the problem will not make it go away. There are some problems which are easily solved. There are some problems which are never truly solved; they are just managed.

The ways in which groups deal with problems are very different. There are many reasons for this. There are a few universal truths about problems and groups which need to be stated:

1. The longer a team has been together, the better able the team is to deal with whatever problem arises.
2. Teams early in development, seem to stumble more in dealing with problems.
3. An unmanaged or unsolved problem is a continuing source of irritation, lost motivation, and earnings to any group.
4. The best solutions are those the group is able to devise and implement.

Newer groups find it very difficult to deal with problems. The place to solve a problem is in a team meeting. If a problem arises, and a team sits down to discuss it, the chances are not everyone will participate. Some of the team members will dominate the meeting. Some may become hostile or exhibit negative behavior which is a turn-off to other team members. Some members are just naturally shy. Other members may think their ideas may not be good, or that the team may view them as silly.

The reasons listed above are all very real. All groups may not have all of these present, but any of them will limit participation. Some things are clear. The greater the participation, the more ideas arise. The greater the participation, the easier it is to get the group to adopt a solution.

If participation is the key, the question then becomes how do we get full participation? One answer is "Bob's Way". This is very similar to the "Nominal

Group Technique of Decision Making" or "Brainstorming". The biggest differences are "Bob's Way" does not require anyone to speak up and it insures anonymity.

THE STEPS IN BOB'S WAY

1. The team leader gets slips of paper and pencils for the group. The team leader writes the problem for decision making on a board for everyone to see.
2. The team leader reads the problem to the group and passes out the paper and pencils. The team leader charges the group with the rules that everyone must participate and agree to abide by the group's decision.
3. The team leader then asks the team members to write down every possible solution which comes to mind. THE TEAM LEADER STATES THAT EVERY MEMBER MUST WRITE DOWN AT LEAST ONE SOLUTION TO THE PROBLEM.
4. The team leader collects the papers from the team. The team leader counts to make absolutely sure that there are as many slips as there are members present. If there are not, the team leader says they are waiting on the others. If blank pieces of paper are submitted, all the slips are discarded, new slips are passed out, and step three is repeated. Once there is one slip for every team member, the team leader goes to step five.
5. The team leader writes every idea on the board, numbers them, and reads them to the team.
6. The team is then asked to write on another slip of paper the solution they like best. If there are a great number of solutions, ask the team to write down the top three choices. AGAIN, EVERY MEMBER MUST TURN IN A SLIP. Do not go on to step seven until this is done.
7. The team leader tallies the number of times each solution was written down by the team. The solution which has the most support is the solution to first try. If the team listed three choices, a second ballot between the top three might be needed.

What ifs...

- If members want to discuss possible solutions, they may do so only after all solutions are written on the board. They should not threaten.
- If two solutions show equal support after a second ballot, first try one and then the other.
- If a member does not want to try the solution, it is up to the group to encourage the member to give it a try. Remind them they agreed to abide by the group's decision.

DEFINING THE TEAM LEADER

One who is chosen by the mod's team to be a voice for all members.

DUTIES:

1. Call the meetings to order.
2. Coordinate the meeting:
   - Focus on behavior - no right or wrong - actively listen.
   - Ask open- ended questions and receive suggestions from the whole group.
   - Keep the meeting focused in the right direction.
3. In the event that other departments are involved, the group leader should go to the immediate supervisor and go through proper channels in asking for attendance.
4. A team leader is not the problem-solver or decision-maker for the mod.
5. A team leader does not deal with personal or personnel problems.
6. Summarize and dismiss mod meeting.
7. Team leaders' responsibilities are in the team meetings and not on the production floor. All team members share responsibilities in the mod.

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TEAM MEETING OUTLINE

It is hoped that our team meetings can be informal yet meaningful. In order to make the most of these meetings, the guidelines are as follows:

1. Discuss work-related problems within your own mod that is controlled by the team or plant. Uncontrollable problems should be noted and discussed with Management to determine who should be involved in solving the problem.
2. If needed, brainstorm and problem-solve.
3. Discuss improvements that could be made in your mod that is within the team's control.
4. Set goals - create an action plan.
5. Review progress made by team.
6. Refer to response notebook - update or delete as necessary.
7. Concensus
8. 30 minute limit (unless agreed to by supervisor).
9. Agenda.
10. DON'T argue -- Discuss!
11. DON'T use names -- Talk in terms of the process.
12. Keep FOCUSED on the Agenda.

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WHOSE RESPONSIBILITY IS IT?

In a module, every team member has to assume certain responsibilities. From the following statements, decide who has the responsibility listed and mark the appropriate answer as follows:

Mark: A - For Team
B - For Team Member
C - For Team Leader
D - For Other

____ 1. Choose new team members.
____ 2. Determine pay rates.
____ 3. When to move to secondary job.
____ 4. Need for a mechanic.
____ 5. Choose team leader.
____ 6. Resolving conflicts.
____ 7. Determine production goals.
____ 8. Determine who should move in the team.
____ 9. Determine who will fix repairs.
____ 10. Determine team supervisor.
____ 11. When to work overtime.
____ 12. Keep machine and area clean.
____ 13. When to use safety equipment.
____ 14. Who will do recuts.
____ 15. Meet with the manager for the team.
____ 16. Mediate Team meetings.

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TEAM MEETING DISCUSSION TOPICS

Mark the following topics either Yes if they should be discussed in team meetings or No if they should not. All items should be pre-approved by management.

YES	NO		
____	____	1.	Work balance between operators.
____	____	2.	Why an operator is out.
____	____	3.	How to adjust when an operator is out.
____	____	4.	Amount of cut work in plant.
____	____	5.	The need to use counters.
____	____	6.	The Red Sox game.
____	____	7.	The new operator's retraining curve.
____	____	8.	The new operator's boyfriend.
____	____	9.	A new method for an operation.
____	____	10.	Electing a new team leader.
____	____	11.	Changing the layout of the module.
____	____	12.	Complain about fabric prices.
____	____	13.	Not wanting to work required overtime.
____	____	14.	Discuss reasons for the need for overtime.
____	____	15.	The unfairness of the quality audit.
____	____	16.	The results of the quality audit.
____	____	17.	Who your supervisor is.
___	____	18.	Goal Setting.
____	____	19	Other?_____

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COMMUNICATIONS - THE LIFELINE IN MODULAR

by Robert L. Lowder

Communications is the most basic element in keeping any relationship between people on an even keel. The ability to simply let another person know how we feel and to know how they feel concerning any subject is essential to the success of that relationship.

Modular manufacturing work teams certainly are one place that good communications skills must be used. Prior to joining a work team where participation is needed and expected, communications skills were not essential to the typical employee. Supervisors and others could do much of that. In many cases, employees felt that their opinions did not matter, so why say anything?

Getting along with fellow workers rarely included the interrelationships between employees, it mostly meant socializing in the canteen. Since most people have to interact socially, getting along with co-workers was not particularly difficult. Occasionally, feelings would be hurt, harsh words would be said, but those who had a disagreement simply "stayed away" from each other.

Interdependent work teams mean that each team member must hone not only the skills necessary to learn additional operations, but to also learn skills which will help them "get along". Communications is the cornerstone in a set of skills which can help team members not only "get along", but solve problems, and improve the job.

While there are three types of communication, written, oral, and non-spoken, the one which usually requires the most work is oral communications. Oral communications is what will be explored in following paragraphs.

THE BASIC ELEMENTS

In order for communications to exist several things must happen. These things are the basic elements of a complete and satisfactory communications transaction. If any of the elements is missing, a complete communications transaction will not take place. This means that communications will not happen.

Message. The first element in a communications transaction is the message. If we do not know what we want to communicate, it is highly unlikely that those we want to get the message truly will get it. Some thought should be given to exactly what needs to be communicated. The more clear and simple, the better. The more words being used, the more difficult it will be to pick out the essential parts of the message. The keys to getting the message right are to, first, think about it and, second, keep it simple.

Sender. The second element is a sender. If a team member sees something is going wrong or knows a problem is about to happen, and says nothing about it, the chances are good that it will cause harm to the group. Someone must take

responsibility and send the message. There should be no fear of reprisal in a good team for being the "messenger". Since all team members will gain or lose together, the key is not who does the sending, but that it gets done.

Common Language. Even though a message is thought out and it is sent, it will do no good unless it is sent in a language which is understood by those for which it is intended. As an example, speaking in French might work fine in Louisiana, but not in Maine. Speaking Spanish might work in El Paso, but not is Elkton, VA. Use of slang or other colloquialisms, will only work if every member of a team has the same background. Again the key to successfully mastering this element is keeping it simple.

Receiver. The best message sent in earnest in the clearest of language will not result in complete communication if it is not received. It does a team member little good to talk to himself about a problem and its potential effect. It must be received by someone to be of help to the team. It is not the responsibility of a potential receiver to be listening all the time for a communication. It is the responsibility of the sender to insure the attention of a potential receiver is secured before a message can be sent. The key to successful mastery of this element is to first get the attention of the potential receiver.

Feedback. Just because a message is sent and received, heard, this does not mean communication has taken place. The receiver must understand the message and let the sender know it is understood. This is not normally a silent or passive process. The feedback can be verbal or visual. Just because the receiver acknowledges receipt of the message, this does not mean it is understood or that the receiver agrees with the message. It does mean that a complete communication transaction has taken place.

In order for a team to work out problems or to spread essential information, many communication transactions must take place. It is essential for the success of the team to communicate. It is also the responsibility of each team member to practice good communications techniques.

COMMUNICATION EXERCISES

Match the following statements with the element of communication.

A - Message. B - Sender. C - Common Language. D - Receiver.

E - Feedback.

____ Sally thanks Susie for letting her know a part has fallen on the floor.

____ Susie decides the bad cutting is costing time and looks bad.

____ Bill hears Tom calling his name.

____ Jack tells the mechanic about the broken pallet jack.

____ Juan decides not to speak to Dan in English.

In the following statements are all incomplete communications, decide which element was not successfully used.

1. Betty sees that the first job in the line has skipped stitches. She yells out that she wishes whoever was doing that bad work would stop.

Missing Elements_____

2. Tom tells George to tighten up. He did not take George to raise.

Missing Elements_____

3. Jane hears Louise telling her about the dirt coming from Jane's machine, but is too busy to reply.

Missing Elements_____

4. Al knows the work he is getting is bad, but decides to just put up with it.

Missing Elements_____

5. Homer is upset, calls to Bill who says "What is it?", and Homer says "I am tired of losing money!"

Missing Elements_____

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6. Leonard sees George's thread is about to run out and calls to him. George turns and looks at Leonard. Leonard points out the thread cone. George says thanks and changes to a full cone.

Missing Elements_____

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ROAD BLOCKS TO COMMUNICATION

1. ORDERING, DIRECTING	Telling the other person to do something or giving her an order.
2. WARNING, THREATENING	Telling the other person what the consequences will be if she does something.
3. MORALIZING, PREACHING	Telling the other person what she should or ought to do.
4. GIVING SUGGESTIONS OR FALSE SOLUTIONS	Telling the other person how to solve her problem.
5. PERSUADING, ARGUING, LECTURING	Trying to influence with facts, counter arguments, or your own opinions.
6. CRITICIZING, BLAMING	Making critical statements or evaluations of another person.
7. PRAISING, AGREEING	Manipulation through flattery or implied promise of reward.
8. RIDICULING, SHAMING	Making the other person feel foolish or guilty.
9. INTERPRETING, ANALYZING	Telling the other person what her motives are, or analyzing why she is doing or saying something.
10. REASSURING, SYMPATHIZING	Trying to make the other person feel better, trying to make her feelings go away.
11. QUESTIONING, INTERROGATING	Trying to determine reasons or motives; searching for more information.

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ACTIVE LISTENING SKILLS

I.	DOOR OPENERS	Showing interest by inviting the other person to expand or continue.
	EXAMPLES:	"Would you like to talk about it?" "Are you bothered by something?" "Tell me about it."
II,	PARAPHRASE	Putting into your own words what you have just heard to check for understanding.
	EXAMPLES:	"So you are really hacked off over this." "Let me make sure I understand, you feel that...".
III.	SIMPLE ACKNOWLEDGMENT	Let the person know you are listening.
	EXAMPLES:	"Really" "Oh" "I see"
IV.	ACTIVE FEEDBACK	Helping the other person to understand the feelings of her communications.
	EXAMPLES:	"You're not sure what to do next?" "You're saying that it isn't worth the effort."
V.	ACTIVE, NON-VERBAL COMMUNICATIONS	Posture, eye contact, nodding head, or other facial expressions.

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BLAME IT ON THE WORK

by Robert L. Lowder

When things go wrong, it is quite natural for all of us to look about for a reason. Far too many times our search does no turn up what the problem is. In many cases, we tend to blame the person who operated the machine, or who found the bad work, or who did not find work which was bad. While this is a natural human tendency, it is not conducive to good relations between team members.

In modules or work teams, it is important for the team to work together to accomplish its goals. Getting along is the single biggest element which teams must build early on if they are going to achieve their potential. Getting along can be one of the most difficult of things to achieve if each team member does not work at it.

There are many keys to getting along. Even knowing this, there are no guarantees of successfully getting along all of the time. The best we can hope to do is to add some tools which can help us.

One simple tool to use in a module or work team is called "Blame-it-on-the-Work (BIOTW). Very simply, express whatever is wrong in terms of how it affects the work we are doing. Do not express what is wrong in terms of another person. People are not always the problem. If we first blame a person, we are throwing up a roadblock. We risk that person becoming defensive, uncooperative, and perhaps even aggressive and hostile. BIOTW seeks to steer criticism away from the person.

In modules it is best to express problems in terms of how it is affecting the work. There may be someone who is not trying, Rather than saying "You're not working hard enough", it might be better to say "there is not enough work coming through the module". Another example might be instead of saying "you're running raw edges on binding"; say "the binding has raw edges".

There are many instances where this can be of value in dealing with other team members. Look at the following statements. See if you can turn them around so that we are blaming it on the work.

"You are stretching the sleeves; they look twisted".

Change to:_____

"Why don't you ever help out when Sally gets behind".

Change to:_____

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"You wad the work up too bad to sew".

Change to:_____

Write your own example of a situation from your group where BIOTW would have helped:

_____

Change to:_____

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THE GOLDEN RULE IN MODULAR MANUFACTURING

by Robert L. Lowder

"So in everything, do to others what you would have them do to you, for this sums up the Law and the Prophets." Matthew 12:7, NIV Bible

There are many ways to express how we should treat others. These ways may be sometimes complex and difficult. The ones that work best are sometimes the simplest. They are also the ones which are known by most people. They are so well known; they are often overlooked.

Some people might consider "The Golden Rule" to be one of those ways of treating others which is so well known that it is overlooked, and they consider it to be too worn out to work well. In fact, "The Golden Rule" is still one of the very best guidelines in helping us deal with others. The problem is that we either don't keep it in mind when dealing with others, or we distort its meaning.

In Modular Manufacturing, "The Golden Rule" can be used to the advantage of the group. The basic message of "The Golden Rule" as well as some of the old distortions of the rule (let's call them corollaries) offer work teams the opportunities to really make a group come together and prosper.

THE BASIC STATEMENT

The basic statement deals with treating others with the respect we would treat ourselves. This does not mean to treat others as we might allow ourselves to be treated. Even if we are particularly "thick skinned" when others speak harshly or inappropriately toward us, this does not mean others can take that type of treatment and remain untouched by it.

What this does mean is that each individual must think before acting. Each person, when contemplating saying something which might be critical or potentially upsetting, should first think about how they would want to be spoken to about this. When contemplating some action toward another person, reverse positions in your mind. Ask the question, "how would I react to this action".

It is not easy to pause, in the heat of the moment or when someone is upset, and consider the consequences of a word spoken in anger or the reaction of another. It is, however, much better to do so than not. The chances of promoting harmony are much better if this can be done.

FIRST COROLLARY "Do unto others..., only do it first!"

Many of us have heard this distortion of "The Golden Rule". It conjures up pictures of someone about to do something unsavory to us, so we do it to them

first. When we think about it, it is not a very pleasant thing to contemplate such a thing if the shoe is on the other foot.

This corollary has another meaning in Modular Manufacturing which is very pleasant, very positive, and very rewarding. First, consider that the typical module prospers or suffers based upon its collective productivity. Then consider a situation where one operation is behind, but no one in the module seems to be willing to help out. In such a case, the first corollary, "do it first", is a good thing. Why not go ahead and help out the operation which is behind yourself. If this is done, the operation would no longer be behind. Others, who should help might say, "let me do that". Best of all, everyone in the group will see you as you as one who is willing to help out. These same people are more likely to help you, because you are willing to help them. Basically, if one person sees something which needs to be done, is not sure who should do it, and has time to do it themselves; that person should go ahead and do it.

COROLLARY TWO..."Do bad unto others...".

Some people do not care as much about others as they should. They do not care if they do something which is harmful to the other person. These same people would not do something which was harmful to them, but they just don't care about others.

In Modular Manufacturing this type of person should re-examine the consequences of doing "bad" to others. Suppose one team member did not care how bad work from their operation affected others. Suppose this bad work caused the other operations to spend more time making up for this. In this group, who would suffer? The answer is all members will suffer. The person who practices the distortion, "do bad unto others", is in fact doing just as much harm to himself as to others.

COROLLARY THREE..."Do good unto others...".

In a conventional line concept where people are paid based upon individual output, it is difficult for people to practice this corollary. It is not that they would not like to help out someone else who is in need. It is simply, that they will suffer if they do help. Suppose one employee in a line has a large stack of work which they did incorrectly to go through. Suppose you know you could show this person a better way, so you do. In fact, you also help them go through the stack. In a line situation, you will probably lose time and money.

In Modular Manufacturing, the opposite is true. Suppose the same situation exists. The Module will suffer because of the bad work, but if the situation is not reversed, everyone will continue to suffer. By helping out, doing good unto others, you will also be doing good unto yourself.

Simply, whatever action is taken in a module, both good and bad, all members of the team will share the consequences. So when it gets down to it, the simplest thing is to simply always try to do good.

CONTINUOUS PROCESS IMPROVEMENT

The **first** step in continuous process improvement is to identify the systems constraints. In any sequence of operations, there is only one which is the weakest link. Properly identifying this "weakest link" will, in fact, define the systems constraint. In other words, the sequence of operations can produce no more than its least productive function. This is defined as the capacity constraint resource (CCR).

Step **two** in the continuous process improvement of Synchronous Manufacturing is to "exploit the systems constraint." This means that everything possible should be done to assure that the constraint resource is functioning properly and for every minute of the work day.

Step **three** is to subordinate every other decision in the organization to the proper functioning of the systems constraint. This means that all scheduling and plant loading should be based upon the productivity of the systems constraint. There is no need to load more work into the plant than is being produced at the constraint operation. This will only add unneeded inventory.

The **fourth** step in the process of continuing improvement is to elevate the constraint. This means that additional equipment or personnel should be applied to the constraint operation so that it can increase productivity.

Step **five** in this process is based on the idea that having elevated the constraint it is no longer the systems constraint. When this happens, we then go back to step one and identify the new systems constraint. It is important to note, however, that policy issues which were created in light of the constraint resource should now be reviewed for their applicability.

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AN EXERCISE ON QUALITY AND HOW TO GET IT

In the following exercise we will learn something about quality and how to best get it. We will read a paragraph. We will consider the paragraph to be our production. We will also consider a certain letter of the alphabet to be a defect. Our task will be to rapidly read the paragraph as well as find all the defects. You should not turn to the next page until you are instructed to do so by your facilitator. The exercise is timed, and you will not have a great deal of time to complete the exercise.

Your facilitator will read the following instructions and then you may begin.

INSTRUCTIONS: When I say go, you may turn over to the next page. Your task will be to read the paragraph and to find and count all of the ____'s... on the next page. GO!

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Once upon a time, many millions of moons ago, the mass of multitudes of mother Earth did not muffle their cries of murder. It seems most felt the many problems stemming from the mountains of mud, had caused several members of the community to mope about and plan a most unfathomable act...TO COMMIT MURDER MOST FOUL! The Mississippi had for years meandered in a most pleasing and melodious manner. Many swore they could remember no other time in the past when the mighty Mississippi had been so cruel. But as fate would have it, the river rose and flooded most of the farms and many dwellings. Making ends meet became harder and harder until the majority decided to just give up. Others only could sit and make music in a most melancholy way. It was no longer considered a treat to beat your feet on the Mississippi mud. There was simply more than any good man or woman could manage.

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COUNT THE M'S

Once upon a time, many millions of moons ago, the mass of multitudes of mother Earth did not muffle their cries of murder. It seems most felt the many problems stemming from the mountains of mud, had caused several members of the community to mope about and plan a most unfathomable act...TO COMMIT MURDER MOST FOUL! The Mississippi had for years meandered in a most pleasing and melodious manner. Many swore they could remember no other time in the past when the mighty Mississippi had been so cruel. But as fate would have it, the river rose and flooded most of the farms and many dwellings. Making ends meet became harder and harder until the majority decided to just give up. Others only could sit and make music in a most melancholy way. It was no longer considered a treat to beat your feet on the Mississippi mud. There was simply more than any good man or woman could manage.

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WHAT IF'S

AFTER EACH SITUATION, SELECT THE BEST ANSWER.

WHAT IF...

1) A team member does not move to a secondary job when needed.
   A) Tell them to move or they will be sorry.
   B) Tell the team leader to tell them to move.
   C) Make them aware without telling them to do it.
   D) None of the above.

2) You receive a badly cut garment from the previous operation.
   A) Tell them that they messed up the garment.
   B) Throw it back to them, say nothing.
   C) Tell them the garment has a problem.
   D) None of the above.

3) You have been asked to repair work that did not come from your operation so the module could keep the proper work flow.
   A) Tell them you are not responsible for that job.
   B) Do the repair work.
   C) Complain to team leader.
   D) None of the above.

4) As a trainee, you are above your training curve, but a few team members are harassing you about "pulling your own weight".
   A) Keep quiet and keep working.
   B) Complain to the team leader.
   C) Discuss the situation at the team meeting.
   D) None of the above.

5) You are planning your daughter's wedding.
   A) Discuss it with team members as you work.
   B) Discuss it at the team meeting.
   C) Discuss it with the team leader during work.
   D) None of the above.

6) You are the team leader. A team member has asked you to make another team member work harder.
   A) Tell the operator to work harder.
   B) Tell her to tell the operator herself.
   C) Let her know it is not your responsibility to correct work pace, but you will bring it up in the next team meeting.
   D) None of the above.

7) The team is behind on an operation that you can perform and you are ahead on your job.
   A) Move to that job to help catch it up.
   B) Ask the team leader what to do.
   C) Wait for the team meeting to discuss.
   D) None of the above.

8) You are the team leader. One team member keeps dominating the discussions in the team meeting.
   A) Tell that operator to be quiet.
   B) Use brainstorming or "Bob's way" techniques.
   C) Tell other team members to talk more.
   D) None of the above.

9) The team has given up and stopped trying t make the team goals.
   A) Tell other team members that they need to get to work.
   B) Tell the team leader to get the team to work.
   C) Ask for a team meeting with management to discuss how to motivate the team.
   D) None of the above.

10) You are having problems making your goals on your new operation.
   A) Tell the team leader you need help.
   B) Tell the supervisor you need help.
   C) Tell the operator next to you that you need help.
   D) None of the above.

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THE VALUE ADDED CONCEPT AND MODULAR MANUFACTURING

by Robert L. Lowder

At one time a highly successful entrepreneur was considering whether or not to go into the T shirt business. There were many aspects concerning the manufacture of garments that were unfamiliar to him. Previous businesses he owned tended to be service oriented.

The thing that attracted this person to T shirts was the relatively low labor content when compared to other apparel. He knew where there was a very large pool of labor which was experienced in the manufacture of apparel. He also knew of a small knitting mill which was available. Buildings were available, people to run the business seemed to be in abundant supply. He even had some potential customers ready to purchase the product from this new, more local source.

Yet this person hesitated. What he really wanted was to build a business that added maximum value to the product. He felt machinery could be made to run at an optimum level which would maximize the value from the textile process. What he wanted was insight into how to get the maximum value from the labor needed to manufacture the product.

The answer for this entrepreneur is the same answer anyone in a manufacturing or service organization. You get the optimum value from labor when everyone knows what it is and what it means to add value.

TYPES OF LABOR

For purposes of this presentation, we can say there are only two types of labor. That which adds value and that which does not. Both types of labor truly add cost, but the non-value added labor will be refereed to as labor which adds cost. The labor which adds value will be referred to as "value added labor".

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THE DEFINITION OF VALUE AND VALUE ADDED LABOR

Value can be defined as the tangible worth of a product or service. It is what a customer is truly paying for. Value added labor is, therefore, any labor that results in something that the customer can see, feel, appreciate, and is willing to pay for. Saying this in reverse, if a customer cannot appreciate an increased value in what might be added to a product or service, the customer will not be willing to pay for it. It has not added value, only cost.

For our purposes any labor which physically changes the product or service into something more valuable, is value added. Any labor which does not, is considered to add cost. As an example, the labor which someone puts into sewing two pieces together will result in an increase in value. Labor which moves a bundle from operation one to operation two adds only cost. The customer can appreciate a seam which is well constructed, but cannot appreciate the movement of a bundle.

THE VALUE ADDED CONCEPT AND COMPETITION

The value added concept can help a company remain and in some cases improve its competitive position, even against lower wage competition. All products have certain amounts of value added labor and cost adding labor. It is impossible to eliminate all non-value added labor.

Figure one presents a comparison of two companies which are competitors. The one, Our Company, operates close to its suppliers and its market. Because of this, it must pay a much higher labor rate. The other company, Competitor, operates in a low cost area, but is farther from the suppliers and the customers. Presently, both companies are able to sell their products at the same price and make the same money.

Figure One

	Our Company	Competitor
Cost of One Hour's Labor	$6.00	$4.00
Selling Price	$20.00	$20.00
Materials	$5.00	$6.00
1 Hour Value Added Labor	$6.00	$4.00
1 Hour Non-value Added	$6.00	$4.00
Transportation	$1.00	$4.00
Total Cost	$18.00	$18.00
Profit	$2.00	$2.00

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While the labor cost of our competitor is less, the costs of materials and transportation of completed orders is greater. Let us suppose for a moment both companies decide to look long and hard at reducing labor. Both companies decide they cannot reduce value added labor, because the customer would not be willing to pay $20.00 for the product. So both companies find they can reduce non-value added labor to 1/2 hour. Figure Two presents the new cost and profit picture for both companies.

Figure Two

	Our Company	Competitor
Cost of One Hour's Labor	$6.00	$4.00
Selling Price	$20.00	$20.00
Materials	$5.00	$6.00
1 Hour Value Added Labor	$6.00	$4.00
1/2 Hour Non-value Added	$3.00	$2.00
Transportation	$1.00	$4.00
Total Cost	$15.00	$16.00
Profit	$5.00	$4.00

The profit picture has now changed, and it is in favor of Our Company. We can still sell the product for twenty dollars and make more money than The Competitor. If The Competitor lowers his selling price to $18.00, it will again make two dollars profit. Our Company can match the price of the Competitor, or even lower it to $17.50, undersell The Competitor, make more money on each unit sold, and TAKE BUSINESS FROM THE COMPETITOR.

This is a clear example, though simplified, which illustrates how being conscious of labor which adds cost can be of benefit to even a company which has difficulty competing with lower labor cost competitors.

MODULAR MANUFACTURING MAXIMIZES VALUE ADDED LABOR

Modular manufacturing seeks to maximize value added labor. Conversely, the labor which adds only cost, is minimized. This can help any company improve the value of its products to the customer or can improve the profits of the company itself. There are two ways Modular Manufacturing seeks to shift labor toward the value added side.

Firstly, Modular Manufacturing reduces some bundle handling. This is not only the labor of those who physically move bundles from operation to operation. It is also each employee no longer having to tie and untie bundles, clip and paste coupons, or matching bundles. By setting up each operation to feed the other,

bundling is reduced. By clipping only one coupon when work is completed, this eliminates several other coupons being clipped.

Secondly, Modular Manufacturing enlists the aid of all module members and others in the organization to help improve the value of the product by eliminating those things which are not necessary to complete a product or service. An example would be the elimination of inspection once team members take responsibility for their own quality.

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PROFIT IS NOT A DIRTY WORD

By Robert L. Lowder

INTRODUCTION

For many years, companies have existed to make a profit. For just as many years, people have been jealous of a company "profiting from the labor of others". Because of this widespread, but often unspoken, belief, companies have guarded the amount and knowledge of profits.

Publicly owned companies, those which have stockholders, usually publish and make available to stockholders records about profits. Privately-owned companies usually do not publish figures about sales of profits. In both of these cases, companies do not "play up" profits. The belief of these company owners is that the less which is said, the less fuel for jealousy.

In today's competitive environment, there is no need for petty jealousy between a company's ownership, management, and labor. There is, however, plenty of room for and need for partnership. There are good reasons for all interested parties to be concerned about the profit picture. Profit is not a dirty word. It is O.K. to say it aloud, to do those things which will improve it, and to stop doing those things which will minimize it.

THE DEFINITION OF PROFIT

SALES - EXPENSES = PROFITS

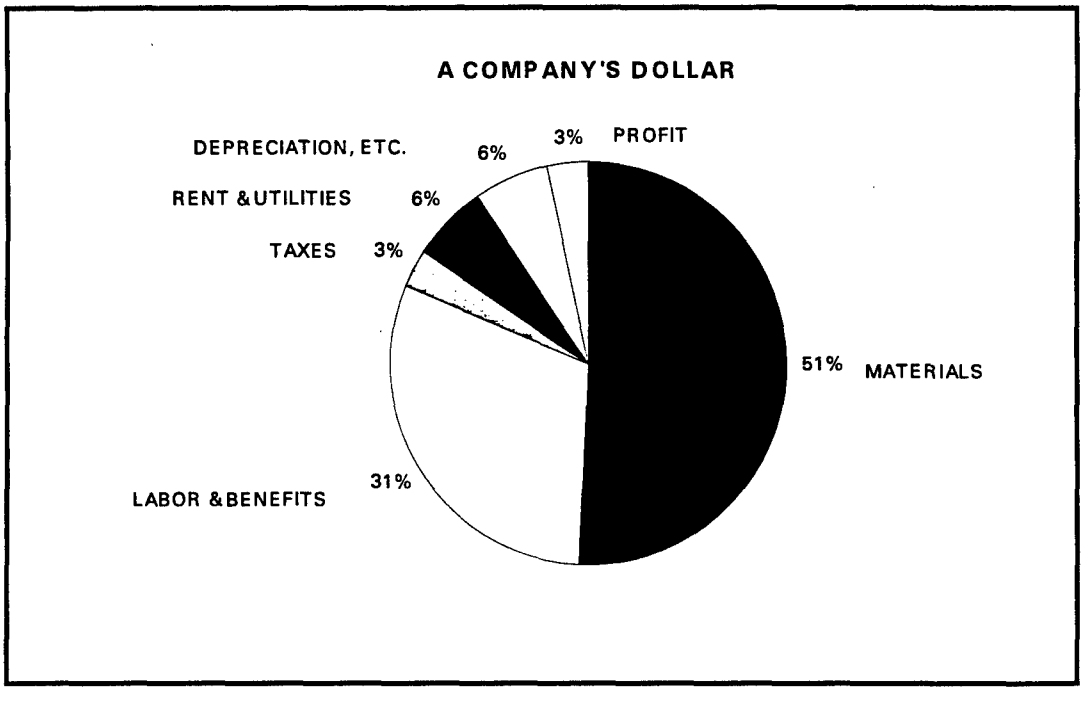
Simply stated, profit is the amount of money remaining after all bills are paid. Saying this another way, the difference between money coming in from customers and money paid out to both suppliers and employees is profit.

A company only gets money when a product is sold to a customer; the customer is billed; the customer pays the bill; and the company deposits the payment in the bank. The dollars received from customers for product are generally called "sales dollars" or simply "sales". This is by far the biggest source of money coming into a company.

A company must pay out money to all of its suppliers. We think of these suppliers in terms of those who sell fabric or other materials to us which we then transform into products. There are other types of suppliers as well which must be paid. All employees of a company are suppliers. They supply labor, ideas, and know how that are needed to run a company or to transform the product. Insurance companies, local government, the utilities companies are also suppliers.

Typically, all suppliers will need to be paid before a company receives the money for the product from its customers. Because of this, banks who loan companies money to operate on (this is known as "working capital") are also suppliers.

A LOOK AT A COMPANY SALES DOLLAR



The chart above is like a pie. If we consider that the whole pie is a sales dollar, then each type of expenditure is a slice or a piece of the pie. By far the biggest slice of the pie and the thing which costs a company the most is materials. This is not only body fabric, but trim items, thread, zippers, buttons, labels, bags, boxes, etc. Over 1/2 of a typical company's money is paid out to suppliers of materials.

The second largest piece of the pie goes for labor and benefits. This includes everyone's salaries as well as other things which are called benefits. Benefits may vary from company to company, but some examples are vacation pay, holiday pay, health insurance supplements, social security, retirement contributions, unemployment insurance, canteen supplements, employee discounts, and benevolent contributions like flowers for funerals.

There are many other pieces to the pie. The chart above shows only a few of the more significant ones. Rent for the building in which we work is a cost as well as the supplies needed to clean and repair the building. Machinery wears out. Depreciation is a way of saying how much less equipment is worth after it is used. There are other pieces of the pie such as liability insurance, property insurance, inventory insurance, interest paid to banks for the use of the working capital, and even payments to outside professionals.

After these pieces of the pie are taken, the government then looks at what is left and takes its piece. It is called taxes. Taxes are paid on the profits of a company before the owners get to share or take their remaining piece of the pie, profit.

The pie chart above is fairly typical. You can see that what is left over is only about 3% after taxes. This is not untypical for a company which manufactures. Saying this another way, for every dollar a company takes in, it can only keep about 3 cents.

WHY ARE PROFITS IMPORTANT

There are companies which make money, called operating at a profit, and companies which lose money, called operating at a loss. There are some companies or organizations which operate as non-profit charities. Profits are important for the first two types.

The first reason profit is important is that it attracts investors. If someone has money which they want to invest, that is much the same thing as a person having extra money left over after all his bills are paid. He and most of us would try to put away some of this into a savings account. This keeps his money safe, but it is also an investment. The interest the bank pays to him is a return on his investment. An investor who starts a company is looking to get a return on his investment. This return is called profit.

The second reason profit is important is investors create jobs. The more profitable a company is, the more jobs are likely to be created. If a business can produce a profit, then investors are willing to put their money into it. If a business cannot produce a profit, the investors will go elsewhere. If one company produces a higher profit than a second, it is likely to get more investors than the second. In fact, investors will take their money out of unprofitable companies and put it into profitable ones. This is the same as a person taking his money out of a bank which cannot pay him interest and putting it into one which can pay interest.

The third reason profit is important is profit means security. Profitable companies do not go out of business. Profitable companies stay in business. The more profitable a company is, the less likely it is to close its doors. Some people believe that the government creates job security, or that companies stay open so they will not have to pay unemployment, but the simple truth is companies stay open because they produce a profit.

PROFIT AND PAY

The fourth reason profit is important is the most important reason of all for employees. Pay raises come from profits. Companies can't just decide everything. The marketplace and customers decide how much they will pay a company for its products. Suppliers say how much they will charge for the materials. How much a company can pay out to its employees depends upon what is left over. Once an investor gets enough profit to make the investment profitable, the rest can go for building the business and pay raises.

Some people believe pay raises come from the government when they increase the minimum wage. This is not true. The only place pay increases truly come from is from the profits made by a company. The more profitable a company is, the more it can afford to pay to its employees. Saying this another way, as a company profits so do its employees. With this in mind, it is in everyone's interest to work in partnership to make a company more profitable. This means profit is not a dirty word at all, but one which we should be music to our ears.

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INTRODUCTION TO METHODS ANALYSIS

WHAT ARE METHODS?

Methods are simply the way in which something is done. This may mean many things when we consider the dictionary meaning of the word method. For the apparel industry in general and for a successful incentive system in particular, method is very important.

In apparel manufacturing, method is one of the cornerstones of the foundation for a successful incentive system. Other parts of the foundation include such things as performance expectations, the actual yield of the incentive system, allowance procedures, off-standard definitions and payments, learner's curves, and method of work measurement.

In apparel terms, a methods description is used to define the way an operation is done. It may be written in long hand, on a left-hand/right-hand chart, or captured on video. It would include not only the way in which the hands move, but the general workplace layout, the machinery, the attachments, and the thread or other supplies used. It truly defines all the components necessary to successfully complete an operation.

WHAT ARE METHODS USED FOR?

The first and most important use of a method is to teach someone the prescribed way to do an operation. The description can be preserved and used whenever needed. This insures consistency of product. It also can influence quality.

A second use of the methods description is to judge one method against another. If there is a question about whether an operation is being performed in the prescribed fashion, the methods description is the source of the correct information. One method can also be compared to another to determine which is the better of the two.

A third use is in the preparation of incentive piece rates. If a company wishes to have a successful incentive system, piece rates must be set consistently. Applying performance rating factors in a consistent way is difficult at best, so it is important to define as accurately as possible the method. This helps the consistency of piece rates. The important thing to remember is a piece rate is a result of analyzing a method, not vice versa. There is no question about what comes first like in the chicken and egg story. The method comes first, and a piece rate comes from the method.

WHAT IS THE RELATIONSHIP BETWEEN METHOD AND COST?

The relationship between method and cost is indirect. This means as the method gets better, the cost goes lower. Saying this another way the better the method, the lower the cost.

Labor costs are an accumulation of piece rates factored up for excesses or losses. Piece rates are a result of analysis of a method. The better or more efficient a method, the lower or better the piece rate.

WHAT IS THE RELATIONSHIP OF METHOD TO EMPLOYEE EARNINGS?

Method is just as important to earnings as it is to cost. The relationship is a little different. The better the method, the better the earnings.

Each employee is taught to perform an operation based upon a method. Methods themselves can be compared. Under comparison, things such as simplicity of movements, control of fabric, correct machinery, and fittings, will begin to separate good methods from bad ones.

If employees are forced to use methods where difficult movements are used, it will be harder for the employee to make the movements. If work is positioned awkwardly, it makes it more difficult to obtain the pieces, if work comes to the operation in a variety of ways, the employee does not know what to expect from one bundle to the next. Simply stated, method plays an important role in how difficult an operation is to perform. The more difficult an operation is to perform, the more errors will be made. The more errors there are made, the more time is lost in correcting them. The more time is lost the less time is spent on completing first quality work. The less first quality work completed, the lower the earnings.

A correct piece rate can be established on a poor method. The method can also be enforced, but earnings on the method will be poorer than those obtained on good methods.

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CHECK LIST FOR IMPROVING GARMENT OPERATIONS

I. Layout and Relation to Other Operations.

A. Would it simplify work if this operation were performed sooner or later relative to others?

B. Is this operation best located relative to preceding and later operations?

C. Is this operation totally necessary (consider design changes that might eliminate part/all).

D. Would it be less work if this job were combined with others? Or subdivided itself?

E. Are parts, tools, and equipment located as near as possible to where they are needed?

F. Are garment parts and bundle best side up, also best side toward the operator?

G. Are parts conveniently held?

H. Did previous operator dispose for this operation?

I. Is place for disposal convenient and bench, hose, rod, or truck as advisable and located where best suited for the purpose?

J. Could work place be made more convenient by cutting off side or rear of table, or widening it? Would more table in front of the machine assist (often true on long runs)?

K. Would elevating the machine or tilting it assist (especially on disposal)?

II. Handling of Garment and Parts

A. Are parts picked up ready for use without change of grasp?

B. Is all possible folding and positioning done as work is moved to a new location?

C. Are both hands used at all times when possible?

D. Does one hand dispose as other gets next garment?

E. Is jerk of garment for disposal used to break threads at the same time?

F. Could small items be hopper-fed in containers?

G. Could the pick-up be assisted by rubber fingertip, suction-type devices, etc.?

H. Would chutes between operators assist (line style) or is bundle handling preferable?

I. Are special bundle-ties worth a try? Can bundles be started out and passed along without tying?

J. Is most economical bundle size in use?

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III. Machines, Equipment, Etc.

A. Would needle-feed or walking foot machinery by better?

B. Would chain stitch or lockstitch machine be better?

C. Would flat-bed, off arm, up arm, post bed, tacker, button or buttonhole, serger or combination seamer and serger make any part of the job easier?

D. Would different feeds, feet or other parts assist?

E. Would automatic thread cutter as one sews off material assist? Or a cutter on rear of foot? Or a ring cutter on operator's finger?

F. Would folder of different type or capacity assist?

G. Would guides or stops or marks on machine or table assist in locating or indicating distances to sew?

H. Would punch marks or notches in the work help?

I. Are parts cut to fit so as to make sewing as easy as possible?

J. Would having parts with edges creased on a folding machine or edges hemmed before sewing be of help?

K. Can operator run several heads of this or another type simultaneously?

L. Would compressed air operation (as on presses), hydraulic or solenoid operated controls help?

M. Is equipment in good operating condition?

N. Is machine speed best possible?

O. Is best stitches per inch used?

P. Is height of tables, chairs, benches, treadle, and knee lift correct?

IV. Sewing Operation

A. Does operator do all possible folding, thread breaks, pick-up next piece, etc. as sewing?

B. Has operator started sewing at best point for ease, smallest thread breaks, most accurate placement, etc.?

C. Can operator check other work as sewing?

D. Can operator eliminate thread breaks, as turning over parts and sewing other side without breaking?

E. Are foot controls used when possible to free hands?

F. Should operator run all piece to a bin and then cut apart?

G. Can several stitchings be run and cut together?

H. Could cutting or thread breaks be eliminated or better be done by later operations?

I. Are best type needles and thread used?

V. General

A. Would rest pauses be helpful?

B. Is lighting, heating, and air-conditioning okay?

C. Are operators trained to work as smoothly as possible, to avoid nervous or fidgety motions?

D. Can part of inspection be done during other operations?

Should amount be reduced or increased? Should part be done in process or all at completion? Would percentage check be sufficient?

E. Are delays avoided by good supervision or work flow?

F. Are sufficient and correct machines available?

G. Are sufficient utility operators available to compensate for normal absenteeism?

H. Are changes of garment type kept to a minimum (consistent with sales necessities)?

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BIDDING FOR SUCCESS

by Robert L. Lowder

In order for a modular manufacturing work team to succeed, it is important for the team members to commit themselves to the success of the team. In many instances, members will commit to do their best, they sincerely mean it, and they truly try to do their best. On the surface it would seem this is enough to achieve success.

In work teams simple commitment by team members is not enough. What is needed is not only commitment to do one's best, but a clear understanding of how that fits in with everyone else's best. This understanding will come with time. However, the process of learning how each person works, what each person can do, and how to best utilize that mix can be clumsy, time consuming, and fraught with hidden hazards.

One way of successfully navigating these hazards for work teams is called "bidding". The term arises from the need for each person in the team to make their individual commitment, their bid, to the group. Once this is done the commitments can be weighed against one another and adjustments made by the group to balance their "bids".

WHAT CAN BIDDING DO FOR A TEAM AND A COMPANY?

Bidding can accomplish many things. The list which follows contains many things which are related, and in some instances can be considered the same as others, but from a different perspective.

Bidding allows team members to...

1. Set an earnings goal.
2. Determine a productivity goal.
3. Decide upon primary assignments.
4. Decide upon who will have multiple primary jobs.
5. Buy into group decision making.
6. Develop a work routine or plan.
7. Take away the sting and push of the piece rate system.

Bidding helps companies to...

1. Let the team function.
2. Set up a leadership framework.
3. Know how to plan production.
4. Keep the group focused.
5. Measure success of teamwork.

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THE STEPS IN BIDDING

Prior to actually bidding, there are certain things which must be done. First, the module must be set up in some sort of initial balance. This means selecting a team size which will work for the process. It also means recruiting members to fill positions which have a primary assignment. Usually, team members place themselves where their individual skills lie. Second, piece rates for the style to be constructed should be available. Only the total amount of piece rate is necessary for bidding, but individual rates might be needed in certain instances. Third, a skills matrix list of all members and the operations they are familiar with should be drawn up by the team. Once these things are in hand, the bidding session can take place.

AVERAGE THE HISTORIC EARNINGS FOR THE GROUP.

Previous averages of team members are important. They can tell a team how the members have worked in the past. It will not tell the team how members will work in the team, however. Usually, these averages can be written on the board and shared with the group.

USE "BOB'S WAY" TO SET AN HOURLY EARNINGS GOAL.

Using slips of paper, a facilitator asks team members to write down what they feel a good earnings goal for the group should be. This could also be asked in terms of how much money do they think the team can make. The facilitator should not direct an answer. The facilitator should make sure the group understands a goal must at least equal the companies minimum expectation, usually 100% of base.

This process may take several steps to complete satisfactorily. Once everyone has submitted a slip, the facilitator should have someone read the suggestions and write all of them on a board. These suggestions should be averaged. Obvious high or low suggestions should be thrown out. Select one or two hourly goals which seem representative of the group's suggestions. Ask the group to again select one of the suggestions. A good sign of consensus is the closeness of the secondary suggestions and the general satisfaction expressed by the group during the process. No expression should be construed as no acceptance.

CONVERT THE HOURLY GOAL INTO A PRODUCTION QUOTA.

Using the piece rate provided, the facilitator should convert the earnings goal into how many pieces per day the group would have to complete in order to earn its hourly goal. This step may actually take place before the hourly earnings goal is selected, or in conjunction with setting the hourly goal.

EACH MEMBER COMMITS TO HOW MUCH THEY WILL DO ON THEIR JOBS.

List each operation to be performed by the group on a board. Poll each team member individually about how many pieces the group can count on them to do each day. This is the "bid". The facilitator should stress to team members the importance of being as honest and accurate as possible. There will be enough complications in balancing honest bids. It will be much more difficult with unrealistic bids. The facilitator should list all bids on the board. There is usually only one bid per team member written in the beginning.

The facilitator should compare each operation's capacity against the team's quota. A mathematical computation using the bids can show the team how many hours of labor are needed on each operation at the bid level. If there are certain operations which have not been bid, state the hours needed in terms of 100% performance.

A comparison of hours needed against scheduled hours will reveal which operations are in need of help, and which operations can provide help. This should be pointed out to the group. A quick total of hours short (from operations needing help) compared to hours available (from operations which have hours in excess of need) will show the group if the goal is reachable. At this point, if the hours short are greater than hours available by at least one person's capacity (8 hours), it is advisable to have the group to go back and set a lower hourly earnings goal and production quota.

MAKE PRIMARY CROSS ASSIGNMENTS.

From the operations which have hours available, get the members to commit to an operation which is short of hours. They are volunteering to learn and to perform this job in order to get work into balance. This is also a part of bidding. They are saying to the team, I am committed to spending my available hours on a second operation in addition to doing my initial bid. Every operation which is short of hours should be roughly covered in this manner.

MAKE ABSENCE ASSIGNMENTS.

As long as all team members are present, there will be very little additional movement or training needed to keep work moving smoothly. There is, however, a need to make contingency plans. This need might arise from machine delays, less than perfect components, attendance, or meetings. All these causes tend to bottleneck an operation. Therefore, making a contingency plan to cover the absence of each team member will serve the team well, no matter the source of the problem.

The facilitator uses the primary assignment just completed and the skills matrix to provide a framework for discussion. The facilitator says the following, "how will we need to move in order to cover the absence of the first member?" The team members will need to discuss this.

The facilitator can lead the discussion by saying how the absence would affect the hours needed on each operation in order for the team to maintain its

earnings goal. Also, it should be pointed out that everyone on the team would be expected to learn secondary operations. The skills matrix can be used to point out where obvious help might come from, but the decision must come from the team. The team goes through this process for each member.

SET UP A CROSS-TRAINING SCHEDULE.

Once the contingency plan is made, there should be a listing of who will need to be cross-trained. The actual mechanics of setting up a schedule should be done by the facilitator and then presented to the team in a subsequent meeting.

Emphasis must be given to those who must move in order to get the work into balance in the first place. Secondary emphasis should be placed upon those operations which require a long learning period or are particularly sensitive to the group.

The schedule should provide for some period of time where the group is allowed to perform their primary assignments. This is to let them "try their wings" before they will be "kicked from the nest". This can be useful in keeping the team focused on how they will do when they are allowed to perform all day.

FOLLOW-UP AND CAUTIONS

After the session, the facilitator should post the cross-training schedule and make sure everyone is practicing it. There may be occasions where circumstances prevent a member from cross-training. This should be noted. If this situation continues, the facilitator may need to step in and have the team alter the schedule or make special provisions to insure priority cross-training is provided.

Each team member should be cycle checked while cross-training. Cycle checks can be used to feed back to the team how its members are increasing their capacity. It can also point out potential problems before they become critical.

A stamina drill should be run for each member while they are cross-training. This is simply keeping up with how many pieces are completed compared to the time spent. An efficiency level can be calculated which again provides a basis for motivation, etc. In some cases, bonuses can be paid for team members whose training is keeping up with the learners curve.

During the bid process as well as during follow-up, the facilitator must be aware of a few signs that a team member may not be "buying in". Some of these signs are:

1. Refusal to make a bid.
2. Making a grossly inaccurate bid.
3. Refusal to accept a secondary assignment.
4. Reluctance to participate in the goal setting decisions.
5. Statements like..."It will never work", "There is no use in trying", etc.
6. Refusal to work on the assignments as the group needs them.
7. Not performing at bid level.

8. No progress on cross-training.
9. Statements like, "I'm making my bid, I'm not doing any more."
10. Only trying when being observed by the facilitator.
11. Aggressive behavior toward others in the team.

Team members may notice these things and take it upon themselves to encourage the reluctant team member. If this is not successful, the facilitator and the supervisor should begin counseling the reluctant member. It is better to sort out these problems early on. Left unresolved, a reluctant team member can doom the entire team.

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STEERING COMMITTEE RECOMMENDATIONS AT MARYLAND CLOTHING MANUFACTURING, INC.

The following notes are the recommendations from the steering committee for the objectives and ground rules for the modules at Maryland Clothing Manufacturing, Inc. Baltimore plant.

The steering committee is as follows:

Gus Piccinini	President and CEO
Paula Beck	Excecutive Assistant
Rosaria D'Amico	Supervisor
Judy Carrick	Shop Steward
Salvatore Gloriosio	Supervisor
Ivory Cox	Operator
Dominica Tumminello	Operator
Paula Khatkar	Operator
Maria Muffoletto	Operator
Isabel Smith	Operator

GOALS/OBJECTIVES

Keep plant open
Build up to 100% in 24 weeks
Increase job satisfaction
Reduce repetitive trauma
Reduce foot and leg problems (look at padding, sub-floor)
Scheduled preventative maintenance (covers, padding, grid plate)

	Before	After
Throughput (pressing)	1 Day	1 Hour
Indirect Staff (pressing)	5	1<
SAM Reduction		Approx. 5%
D.L. Excesses 5%	2%	
Utility Operators	2	0
Quality (Final Exam) Plant	50%	7%
Quality (Final Audit) Plant	5%	1%
Earnings (Base $6.90)	$6.70	$7.60
Attendance (Whole Day Lost)	2-3%	?
Turnover	?	?

Team Decisions

The team will be allowed to make decisions regarding:

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- Work assignments within the team.

- Even though work breaks are mandatory, the team can stagger the break to allow the team to force more work through the bottleneck operation.
- Efficiency and earnings goals.

- Paging for assistance anytime needed.

- Teams will make every effort to resolve their problems and conflicts, but can request management's assistance on discipline issues by a 2/3 vote of the team. Issues are quality, productivity, attendance.

- Team members will be asked to evaluate new hires during their training process. Though input is appreciated at any time, specific evaluations will be made at one week, four weeks, and just prior to ninety days.

The teams will be asked to participate in establishing work methods and time standards. They will help determine the number of "shots" required for each operation.

Diagrams of the proper method will be posted at each workplace.

The team will work the same schedule as the rest of the factory.

Absenteeism

The Pressing Department will not have utilities.

Management will determine whether to break down a team that has less than 50% of crew available. Management will also decide about working overtime, and assigning one team's work to another team to meet shipment requirements

Team Selection

Initial module class training will be conducted for all 23 people. After understanding the concept, if some with seniority want to opt out, they can go to the Cutting Department for a job, like Fusing. The lowest seven regarding seniority will be given an opportunity for a job in other parts of the factory. Those that choose to stay must make a three-month commitment.

After the initial training, a selection of the 16 most senior members will be made to staff the five teams.

Teams will be staffed with four three-person teams and one four-person team.

The steering committee will make the team assignments considering skills, flexibility, attitude, attendance, and quality.

New Hire Training

New hires will start training on Zone 3 operations and will be given one-on-one training on Zone 1 and 2 operations after they have mastered Zone 3.

A plan will be devised to compensate the team for helping with the trainees' development process.

Pay Calculations

Team pay will be calculated weekly, but percent performance will be calculated daily.

When teams have completed the classroom training, and are determined by the steering committee to be satisfactorily cross-trained, they will go live with the new group incentive plan. A declining bonus will be awarded to help ease into the new incentive plan. The amount and duration of the bonus will be determined by the steering committee.

Repairs

Pressing repairs found by a teammate will be corrected by the teammate or returned to the team member that caused the problem.

Sewing repairs found by pressing will be hung on the center line and the bundle bag with coupon will be placed with the defective coat. A two-part, color-coded and numbered tag will be placed with the defective coat and with a good coat of the same bundle.

This tag will be a signal for the service person to not pass this bundle on until the repair is completed. It is also used to match up the repair when it is returned.

Service

A service person will be responsible to bring work from sewing into the Pressing Department and to take pressed work to the Finishing Department. The service person will also be responsible to process sewing repairs.

Machine Problems

If a machine on a specific team's line goes down, the team will move their work to a spare line and continue working. If more than one line goes down at the same time, management will have to determine which production is most critical for meeting the shipment schedule. The team not getting the spare line may be allowed to have a team meeting, continue on their line in an off-standard mode, or be sent home.

Cut/Bundle Size

Cuts will be made to meet daily requirements by style. They will be in stacks of 45, and will be broken down to bundles of 15 as the work becomes too heavy to process. Work will come to Pressing in bundles of 15.

The bundles will be strung-out over several operations in Pressing and reassembled for movement to Finishing.

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